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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/502,185

07/21/2004

Sung-Cheol Yoon

HNG-0004

5544

23413 7590 09/15/2008

CANTOR COLBURN, LLP

20 Church Street

22nd Floor

Hartford, CT 06103

EXAMINER

CHEUNG, WILLIAM K

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

09/15/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/502,185	<b>Applicant(s)</b> YOON ET AL.	
	<b>Examiner</b> WILLIAM K. CHEUNG	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,6,8,10-13,16-20,23-28,35-39,41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,6,8,10-13,16-19,25-28,35-39,41 and 42 is/are allowed.
- 6) ☒ Claim(s) 20,23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. In view of the amendment filed May 12, 2008, claims 2-5, 7, 9, 14, 15, 21, 22, 29-34, 40 have been cancelled. Claims 1, 6, 8, 10-13, 16-20, 23-28, 35-39, 41, and 42 are pending.

2. In view of the amendment filed May 12, 2008, the rejection of Claims 1, 6, 8, 10-13, 16-20, 23-28, 35-40, 42 under 35 U.S.C. 112, second paragraph, is withdrawn.

3. In view of the amendment filed May 12, 2008, the rejection of Claims 1, 6, 8, 10-13, 16-19, 25-28, 35-39, 41, 42 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lipian et al. (US 6,455,650), is withdrawn.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 20, 23, 24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lipian et al. (US 6,455,650), for the reasons adequately set forth from paragraph 6 of the office action of April 19, 2007.

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20. (Currently amended) An optical anisotropic film comprising a cycloolefin polymer containing polar functional groups which is prepared by a method as claimed in claim 1 and has a molecular weight of 100,000 or more,

wherein the optical anisotropic film has 70 to 1000 nm of a retardation value (Rth), as defined by the following equation 1 and the refractive index of the optical anisotropic film satisfies the following equation 3; and

the polymer comprises more than 30 mol% of norbornene-based compound containing a polar functional group represented by the following Chemical Formula 5:

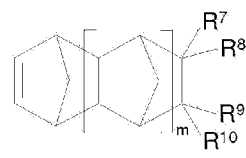
(Equation 1)

$$R_{th} = \Delta(n_y - n_z) \times d$$

(Equation 3)

$$n_x \cong n_y > n_z$$

Chemical Formula 5



wherein  $n_x$  is a refractive index in a slow axis direction in a plane,  $n_y$  is a refractive index in a fast axis direction in a plane, and  $n_z$  is a refractive index in a thickness direction, each measured at a wavelength of 550 nm; ~~and~~

$d$  is the film thickness;

$m$  is an integer of 0 to 4,

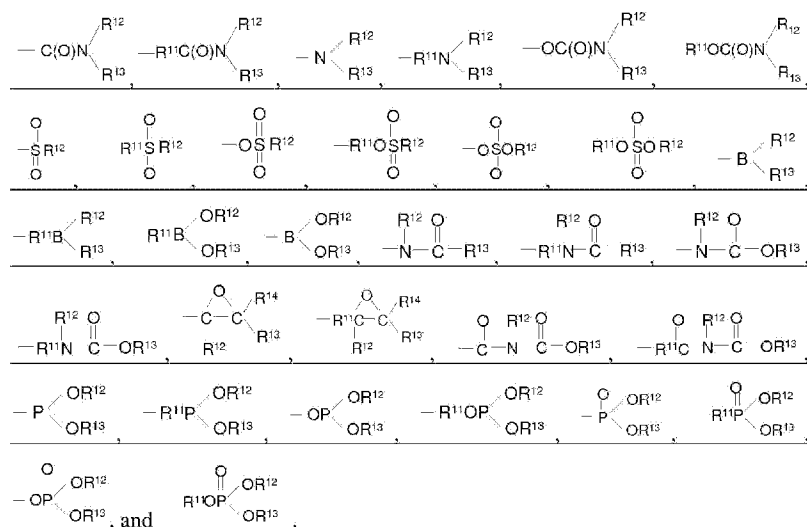
at least one of  $R^7$ ,  $R^8$ ,  $R^9$  and  $R^{10}$  is a polar functional group, the others are non-polar functional group, and  $R^7$ ,  $R^8$ ,  $R^9$  and  $R^{10}$  can be bonded together to form a saturated or unsaturated  $C_{1-20}$  cyclic group or  $C_{6-24}$  aromatic ring;

the non-polar functional group includes hydrogen; halogen; a linear or branched  $C_{1-20}$  alkyl group; a linear or branched  $C_{1-20}$  haloalkyl group; a linear or branched  $C_{1-20}$  alkenyl group; a linear or branched  $C_{1-20}$  haloalkenyl group; a linear or branched  $C_{3-20}$

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alkynyl group; a linear or branched  $C_{3-20}$  haloalkynyl; a  $C_{3-12}$  cycloalkyl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl; a  $C_{6-40}$  aryl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl; and a  $C_{7-15}$  aralkyl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl;

the polar functional group is a non-hydrocarbonaceous polar group containing at least one of O, N, P, S, Si and B, and is selected from the group consisting of:  $OR^{12}$ ,  $OC(O)OR^{12}$ ,  $R^{11}OC(O)OR^{12}$ ,  $C(O)R^{12}$ ,  $R^{11}C(O)R^{12}$ ,  $OC(O)R^{12}$ ,  $R^{11}OC(O)R^{12}$ ,  $(R^{11}O)pOR^{12}$ ,  $(OR^{11})pOR^{12}$ ,  $C(O)OC(O)R^{12}$ ,  $R^{11}C(O)OC(O)R^{12}$ ,  $SR^{12}$ ,  $R^{11}SR^{12}$ ,  $SSR^{12}$ ,  $R^{11}SSR^{12}$ ,  $S(=O)R^{12}$ ,  $R^{11}S(=O)R^{12}$ ,  $R^{11}C(=S)R^{12}$ ,  $R^{11}C(=S)SR^{12}$ ,  $R^{11}SO_3R^{12}$ ,  $SO_3R^{12}$ ,  $R^{11}N=C=S$ ,  $NCO$ ,  $R^{11}NCO$ ,  $CN$ ,  $R^{11}CN$ ,  $NNC(=S)R^{12}$ ,  $R^{11}NNC(=S)R^{12}$ ,  $NO_2$ ,  $R^{11}NO_2$ ,



in which  $R^{11}$  is a linear or branched  $C_{1-20}$  alkyl group; a linear or branched  $C_{1-20}$  haloalkyl group; a linear or branched  $C_{1-20}$  alkenyl group; a linear or branched  $C_{1-20}$  haloalkenyl group; a linear or branched  $C_{3-20}$  alkynyl group; a linear or branched  $C_{3-20}$  haloalkynyl; a  $C_{3-12}$  cycloalkyl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl; a  $C_{6-40}$  aryl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or

haloalkynyl; and a C<sub>7-15</sub> aralkyl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl;

R<sup>12</sup>, R<sup>13</sup>, and R<sup>14</sup> are each independently hydrogen; a halogen; a linear or branched C<sub>1-20</sub> alkyl group; a linear or branched C<sub>1-20</sub> haloalkyl group; a linear or branched C<sub>1-20</sub> alkenyl group; a linear or branched C<sub>1-20</sub> haloalkenyl group; a linear or branched C<sub>3-20</sub> alkynyl group; a linear or branched C<sub>3-20</sub> haloalkynyl; a C<sub>3-12</sub> cycloalkyl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl; a C<sub>6-40</sub> aryl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl; a C<sub>7-15</sub> aralkyl group unsubstituted or substituted with alkyl, alkenyl, alkynyl, halogen, haloalkyl, haloalkenyl, or haloalkynyl; or alkoxy, haloalkoxy, carbonyloxy, halocarbonyloxy; and

p is an integer of 1 to 10.

Although Lipian et al. disclose a catalyst system comprising a precatalyst that is different but similar to the one as claimed, because Lipian et al. (col. 127, claim 54; col. 129, claim 61) clearly teach a precatalyst that can comprises platinum, acetates or acetylacetonates, and an anionic hydrocarbyl containing ligand (R'). Regarding (R'), Lipian et al. (col. 3, line 47-50) clearly indicate that the anionic hydrocarbyl containing ligand can be allylic ligands. Regarding the claimed polymerization temperature and the amount of solvent to be used in claims 41-42, Lipian et al. (col. 40, examples 17-46) clearly teach polymerization processes involving the claimed temperature range of 80-200 °C, and the claimed amount of solvent. Further, Lipian et al. clearly disclose the cycloolefin polymers used in the optical anisotropic film of claims 20, 23, 24 can be prepared using a similar catalyst system. In view of the reasons set forth above, the examiner has a reasonable basis that the claimed polymer products are inherently possessed in Lipian et al.

Applicants must recognize that the claimed invention is a product by process invention. In view of the similarity of the type of catalyst, monomers and processing condition employed, the examiner has a reasonable basis to believe that the claimed product is inherently possessed in Lipian et al. Applicants must recognize that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Regarding the claimed optical anisotropic film, Lipian et al. (col. 43, line 56 to col. 44, line 6) disclose the various applications where good optical properties are required. Of the applications listed, optical film is cleared taught (col. 44, line 2). Regarding claim 24 which claims a display device, the examiner believe that the claimed "display device" is inherently possessed in Lipian et al. because windows (col. 44, line 4) can be viewed as a display device or part of a display device.

Regarding the claimed retardation value, molecular weight, refractive indexes, and equations 1 and 3, the examiner has a reasonable basis to believe that these properties are inherently possessed in Lipian et al. in view of the similarity on the composition and process of polymer prepared in Lipian et al. and the composition and process of claims 1, 20. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re



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Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Regarding claim 23 which claims that the optical film is used as a negative C-plate type optical compensation film for liquid crystal displays, applicants must recognize that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

***Response to Arguments***

7. Applicant's arguments filed May 12, 2008 have been fully considered but they are not persuasive. Applicants argue that the examiner is correct that the exo isomer content may vary depending on whether the reaction is thermodynamically driven or kinetic driven. However, applicants believe that the exo isomer content should still be explicitly taught in Lipian et al. However, the examiner disagrees because the teachings of a prior art can be explicitly taught or can be inherently possessed in Lipian et al.

In view of the similar type of catalyst employed and the substantially identical monomeric types and polymerization condition used, the examiner has a reasonable basis to believe that the claimed "exo isomer" feature is inherently possessed in Lipian et al. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to applicants to show otherwise. In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Applicants must recognize that regarding the claimed "norbornene-based compound having an exo isomer content of more than 50 mol%", Lipian et al. (col. 29, line 45 to col. 32, line 23) clearly disclose cycloolefin polymer having a structure VII (col. 30, line 12-19) having at least one polar functional group as claimed (col. 30, line 62-67). The examiner believes that the claimed "exo isomer content of more than 50 mol%" is inherently possessed in Lipian et al. because the functionalization norbornene inherently can result isomers that are endo, exo, or the mixture thereof, depending on the reaction condition. This is because although exo is the form that is thermodynamically more stable as compared to the endo form, sometimes, the reaction

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can be kinetically more favorable for the formation of the endo form. Therefore, the examiner has a reasonable basis that the isomers of norbornene type materials do not necessarily in a 50/50 (endo/exo) racemic mixture form. In view that it is about 50 percent chance for the argued polymer to have “exo isomer content of more than 50 mol%” and for the argued polymer to have “exo isomer content of less than 50 mol%”.

Applicants also argue that an inherency means that Lipian et al. must possess the claimed “exo isomer content of more than 50 mol%” feature, the examiner disagrees in view of MPEP 2112 (III). The 102-3 rejection set forth is proper.

**III. A REJECTION UNDER 35 U.S.C. 102/103 CAN BE MADE WHEN THE PRIOR ART PRODUCT SEEMS TO BE IDENTICAL EXCEPT THAT THE PRIOR ART IS SILENT AS TO AN INHERENT CHARACTERISTIC**

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. “There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102.” *In re Best*, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/103 rejection is appropriate for these types of claims as well as for composition claims.

Regarding applicants’ argument on comparative data to show the criticality of the claimed invention, applicants must recognize that comparative data is not effective in overcoming the 102 portion of the 102-3 rejection set forth.

***Allowances***

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8. Claims 1, 6, 8, 10-13, 16-19, 25-28, 35-39, 41, 42 are allowed.

9. The following is an examiner's statement of reasons for allowance:

As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the closest prior art of Lipian et al. (US 6,455,650), to render the present invention anticipated or obvious to one of ordinary skill in the art.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/William K Cheung/  
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.  
Primary Examiner  
September 9, 2008

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